
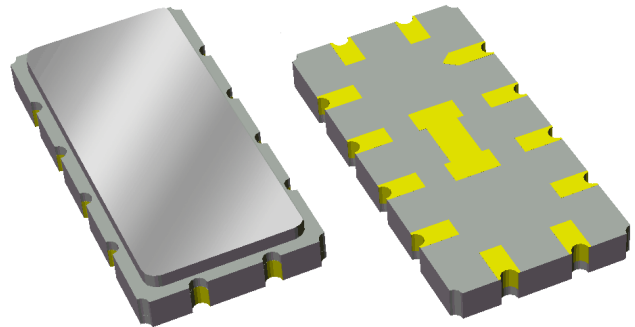


Data Sheet

Features

- For 3 Carrier WCDMA applications
- Usable bandwidth 15 MHz
- Low loss
- High attenuation
- Designed to minimize EVM
- Single-ended operation
- Ceramic Surface Mount Package (SMP)
- Hermetic
- RoHS compliant (2002/95/EC), Pb-free 

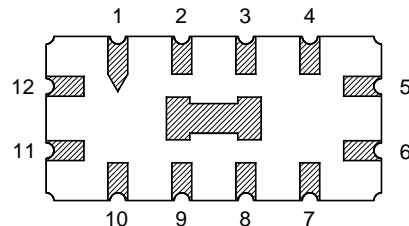
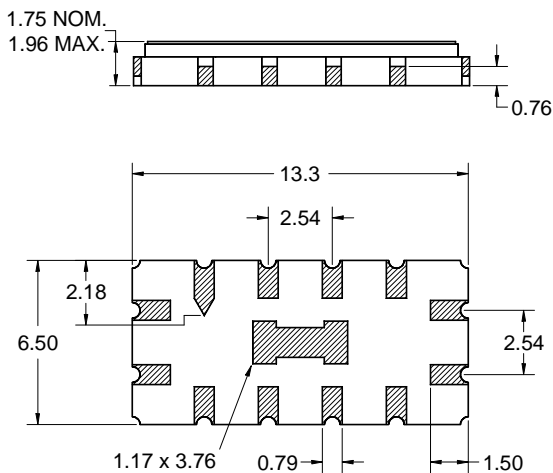


Package

Surface Mount 13.30 x 6.50 x 1.75 mm
SMP-53A

Pin Configuration

Bottom View



Pin No.	Description
5	Output
11	Input
1,2,3,4,6	Case ground
7,8,9,10,12	Case ground

Dimensions shown are nominal in millimeters
All tolerances are ± 0.15 mm except overall
length and width ± 0.10 mm

Body: Al_2O_3 ceramic
Lid: Kovar, Ni plated
Terminations: Au plating 0.5 - 1.0 μ m,
over a 2 - 6 μ m Ni plating

Data Sheet

Electrical Specifications ⁽¹⁾

Operating Temperature Range ⁽²⁾ -40 to +85 °C

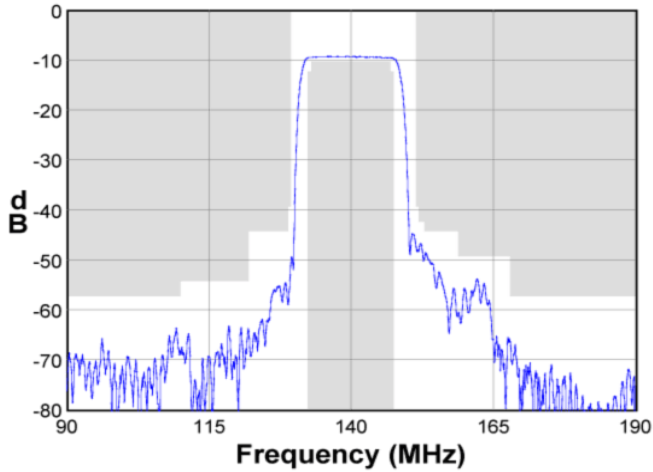
Parameter ⁽³⁾	Minimum	Typical ⁽⁴⁾	Maximum	Unit
Center Frequency	-	140	-	MHz
Insertion Loss at 140 MHz	-	9.1	10.5	dB
Lower 1 dB Bandedge ⁽⁵⁾	-	131.91	133	MHz
Upper 1 dB Bandedge	147	148.09	-	MHz
Lower 3 dB Bandedge ⁽⁵⁾	-	131.40	132.50	MHz
Upper 3 dB Bandedge	147.5	148.65	-	MHz
Lower 30 dB Bandedge ⁽⁵⁾	129.5	130.15	-	MHz
Upper 30 dB Bandedge	-	150.19	151.5	MHz
Lower 35 dB Bandedge ⁽⁵⁾	129	130.06	-	MHz
Upper 35 dB Bandedge	-	150.30	153	MHz
35 dB Bandwidth	-	20.26	22	MHz
Amplitude Ripple ⁽⁶⁾ 135.5 – 144.5 MHz	-	0.24	0.7	dB p-p
Absolute Group Delay 133.0 – 147.0 MHz	-	0.89	1.1	µs
Group Delay Variation 133.0 – 147.0 MHz	-	44	90	ns
Phase Linearity 133.0 – 147.0 MHz	-	3.97	8.0	deg
EVM (Error Vector Magnitude) 133.0 – 147.0 MHz	-	1.69	-	%
Input and Output VSWR 133.0 – 147.0 MHz	-	1.61	2.5	dB
Relative Attenuation ⁽⁵⁾ 40.0 – 110.0 MHz	48	55	-	dB
110.0 – 122.0 MHz	45	53	-	dB
122.0 – 129.0 MHz	35	45	-	dB
152.0 – 159.0 MHz	33	37	-	dB
159.0 – 168.0 MHz	40	44	-	dB
168.0 – 240.0 MHz	48	55	-	dB
Source Impedance ⁽⁷⁾	-	50 Ω	-	Ω
Load Impedance ⁽⁷⁾	-	50 Ω	-	Ω
Power Handling	-	-	+10	dBm

Notes:

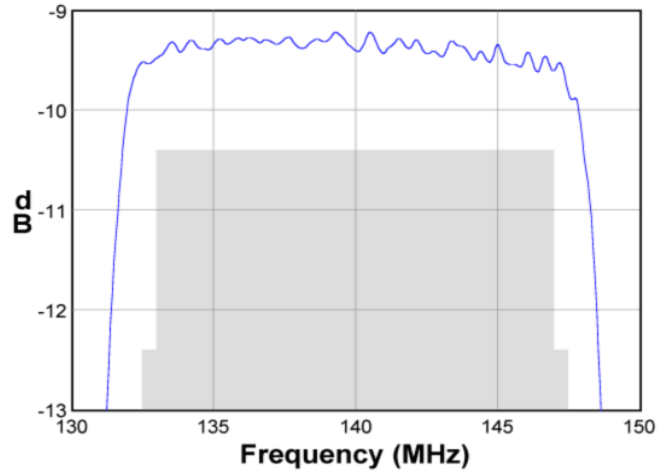
1. All specifications are based on TriQuint test circuit shown on page 4
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances
4. Typical values are based on average measurements at room temperature
5. All Attenuation measurements are referenced to loss at Center Frequency
6. Amplitude Ripple is defined as the worse peak to adjacent valley within defined frequency points
7. This is the optimum impedance in order to achieve the performance shown

Typical Performance (at room temperature)

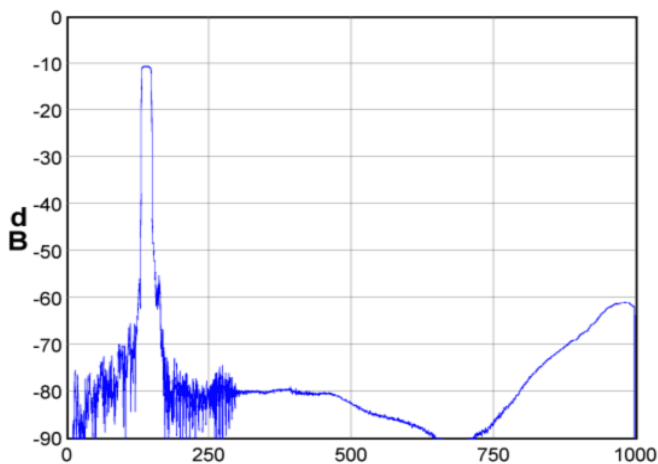
Frequency Response



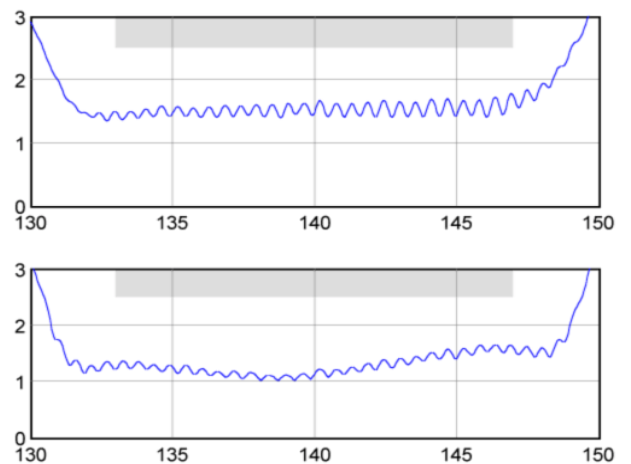
Passband Response



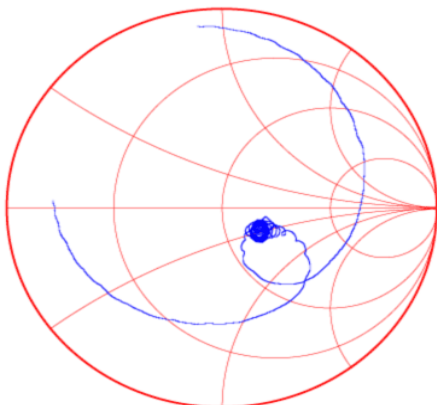
Wideband Response



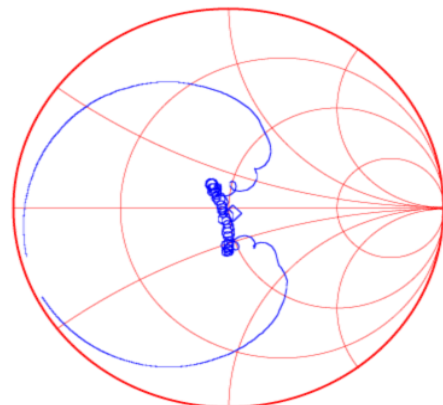
Input/Output VSWR



Input Smith Chart

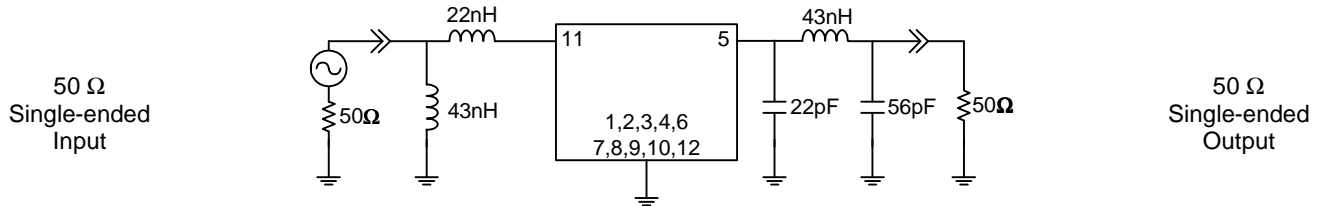


Output Smith Chart

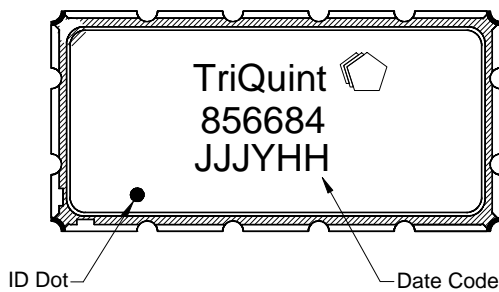


Matching Schematics

Actual matching values may vary due to PCB layout and parasitics

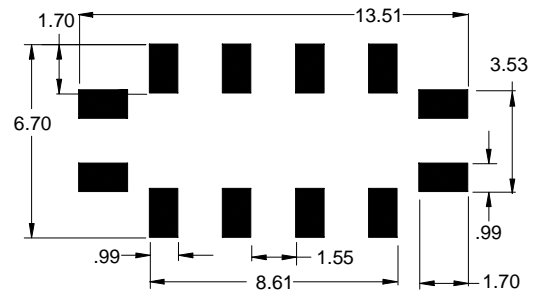


Marking



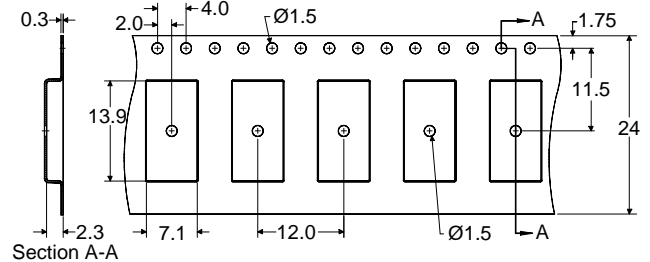
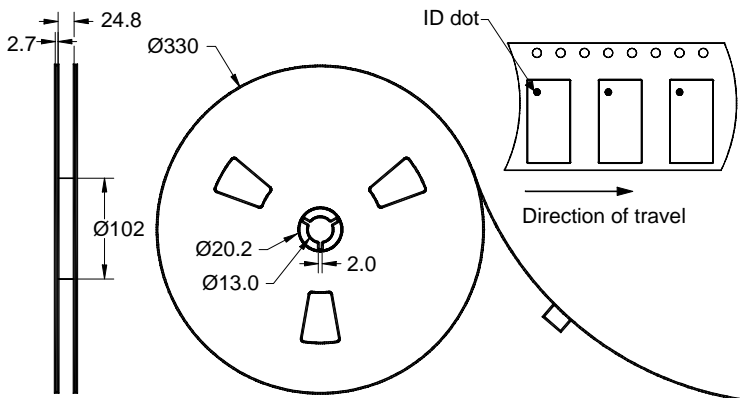
The date code consists of: day of the current year (Julian, 3 digits), last digit of the year (1 digit) and hour (2 digits)

PCB Footprint



This footprint represents a recommendation only
Dimensions shown are nominal in millimeters

Tape and Reel



Dimensions shown are nominal in millimeters
Packaging quantity: 2000 units/reel


Data Sheet

Maximum Ratings


Parameter	Symbol	Minimum	Maximum	Unit
Operating Temperature Range	T	-40	+85	°C
Storage Temperature Range	T _{stg}	-40	+85	°C

Important Notes

Warnings

- Electrostatic Sensitive Device (ESD) 
- Avoid ultrasonic exposure

RoHS Compliance

- This product complies with EU directive 2002/95/EC (RoHS) 

Solderability

- Compatible with JESD22-B102, Pb-free process, 260C peak reflow temperature ([see soldering profile](#))

Links to Additional Technical Information

[PCB Layout Tips](#)

[Qualification Flowchart](#)

[Soldering Profile](#)

[S-Parameters](#)

[RoHS Information](#)

[Other Technical Information](#)

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